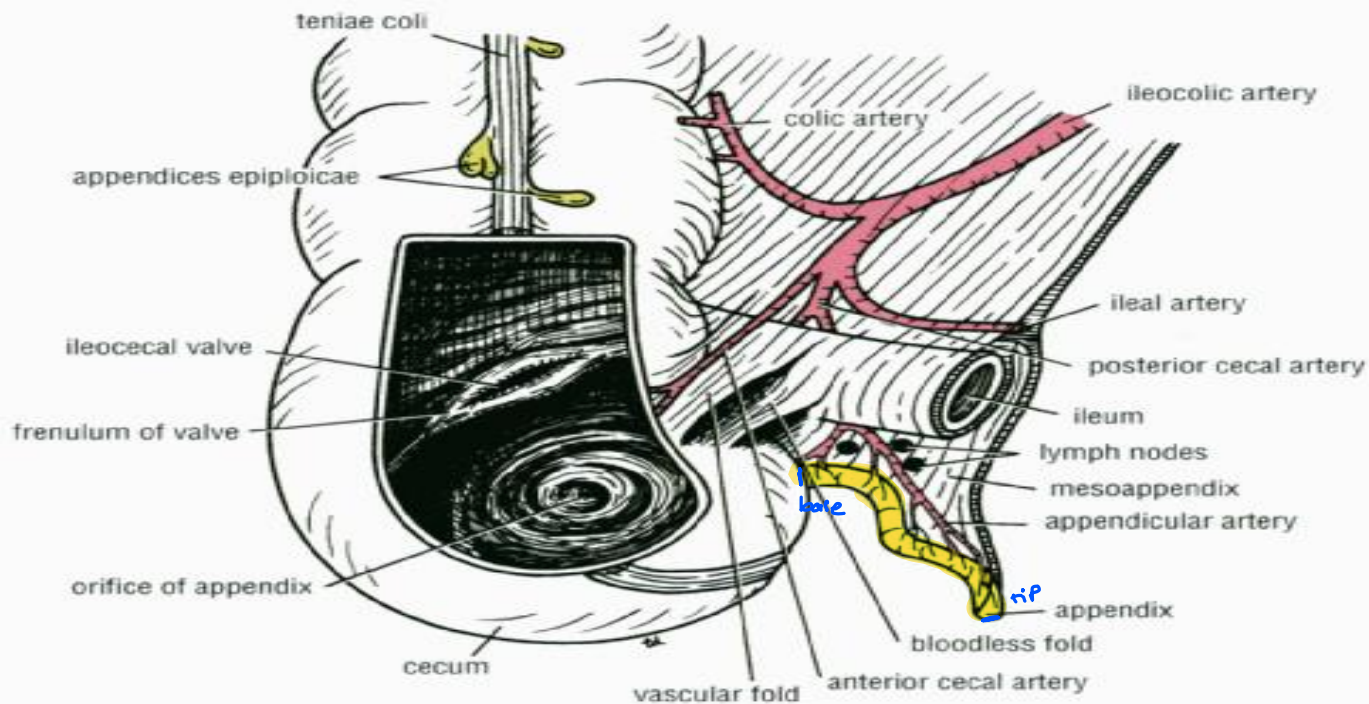


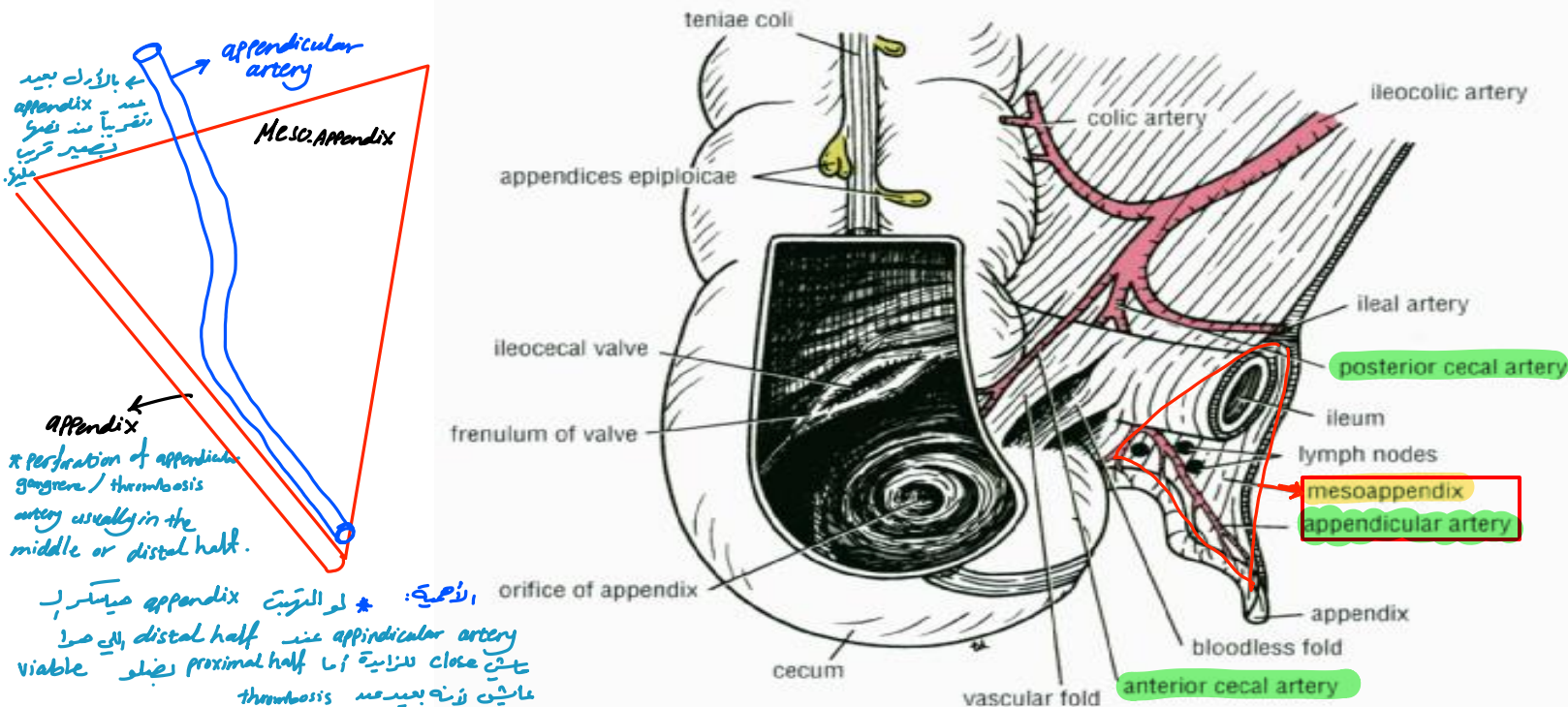
Appendix

- The appendix is a narrow, worm like muscular tube containing a large amount of lymphoid tissue. *line defence → لزالة التهابية جدارية*
- It varies in length from (8-13 cm). *tip of appendix → مختلف طولاً من 8-13 سم. لزالة التهابية جدارية*
- The base is attached to the poster medial surface of the cecum about (2.5 cm) below the ileocecal junction. *inch → 1*
- The remainder of the appendix is free.



Appendix

- It has a **complete peritoneal covering (Meso-Appendix)** triangular in shape which has apex attached to the lower layer of the mesentery of the small intestine and base that surrounds the appendix.
- The mesoappendix contains the **appendicular vessels and nerves**.



Appendix

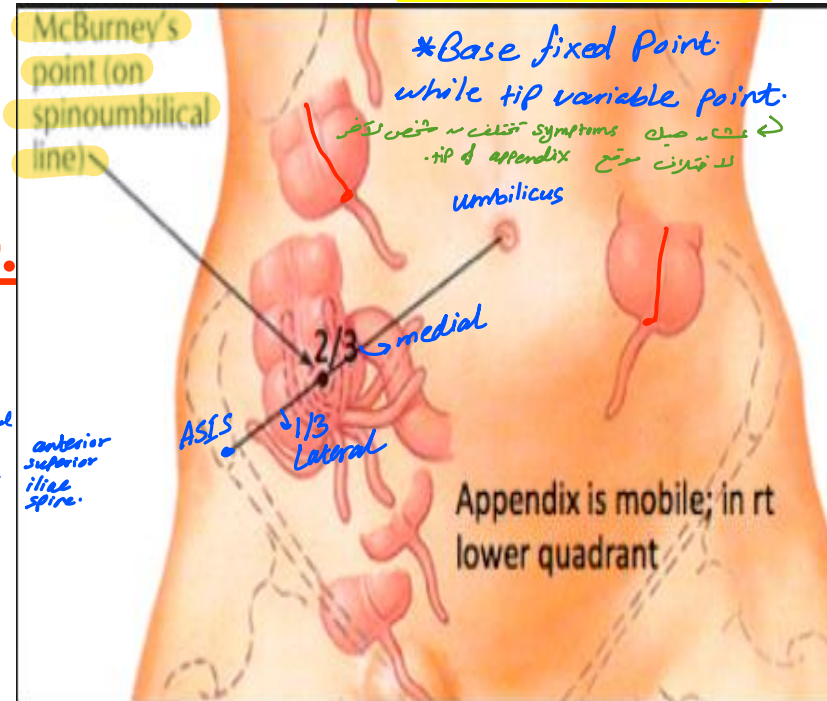
The appendix lies in the **right iliac fossa**, and in relation to the anterior abdominal wall its base is situated **One Third of the Way Up** the line joining the right anterior superior iliac spine to the umbilicus (**McBurney's point**).

كيف علاقي appendix ؟
لو فقت بجد لإجابته أدخلت بالمنظار . كيف علاقي appendix ؟

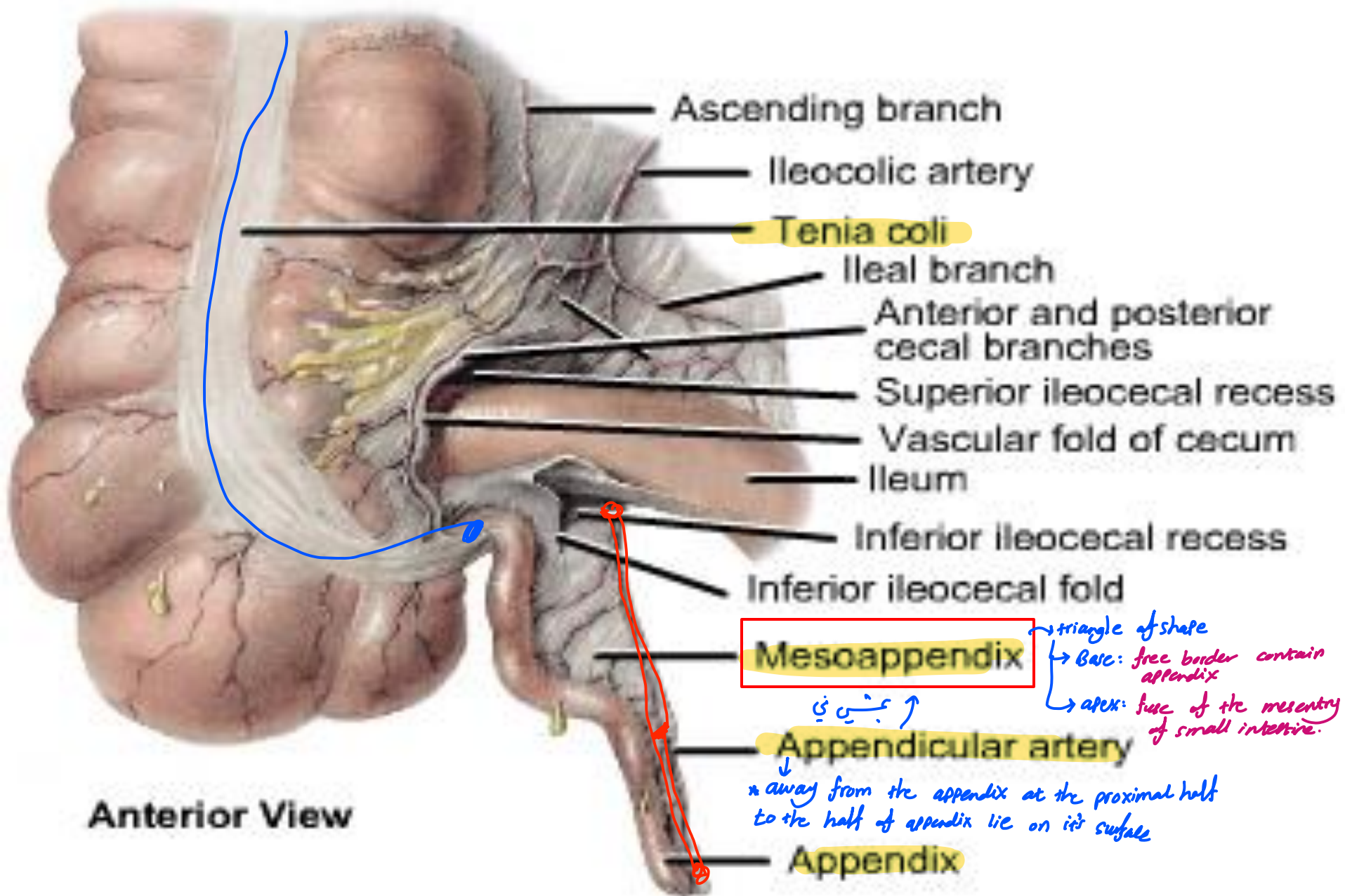
Inside the abdomen, the base of the appendix is easily found by identifying the **Teniae Coli** of the cecum and tracing them to the

في جداره
outer longitudinal
muscle layer
Colon
في
appendix
Rectum

base of the appendix, where they converge to form a continuous longitudinal muscle coat.



* If we follow Teniae coli → You will find the base of the appendix.

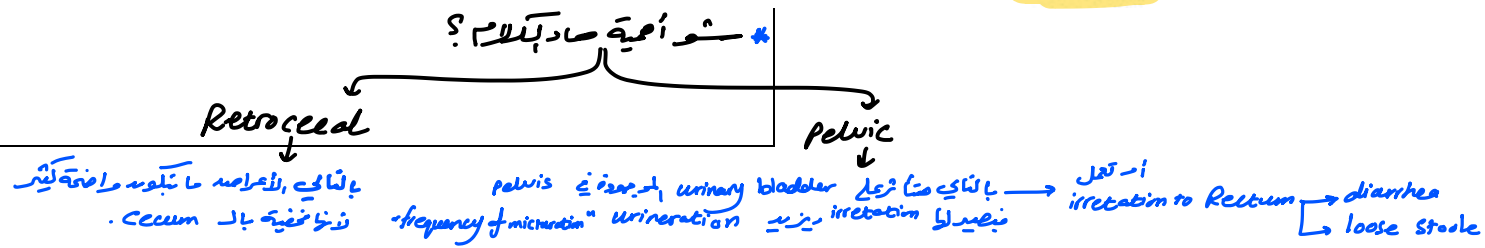
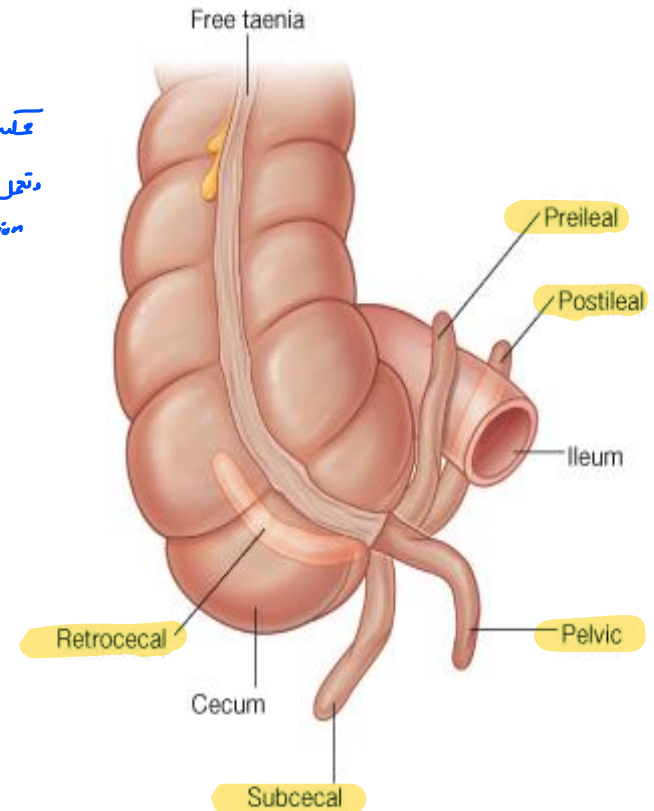


Common Positions of the Tip of the Appendix

variable point $\rightarrow$ But base $\rightarrow$ Fixed point (McBurney's point)

The tip of the appendix is subject to a considerable range of movement and may be found in the following positions:

- Coiled up behind the cecum, (Retrocecal 74%) *Commonest*
- Hanging down into the pelvis against the right pelvic wall, (Pelvic 21%)
- Projecting upward along the lateral side of the cecum, (Paracecal%)
- Below the cecum, (Subcecal)
- Front of or behind the terminal part of the ileum, (pre- and post ileal)



VARIABILITY OF POSITION OF THE APPENDIX

- The Inconstancy of the position of the appendix should be borne in mind when attempting to diagnose an Appendicitis.
← عدم ثبات
that's why symptoms of appendix may vary from person to person.
- A Retrocecal appendix for example may lie behind a cecum distended with gas, and thus it may be difficult to elicit tenderness on palpation in the right iliac region.
*← تشخيص صعب
لأنه retrocecal position.*
- Irritation of the psoas muscle, conversely, may cause the patient to keep the right hip joint flexed.
← تشنج
- An appendix hanging down in the pelvis may result in absent abdominal tenderness in the right lower quadrant, but deep tenderness may be experienced just above the symphysis pubis.
- Rectal or vaginal examination may reveal tenderness of the peritoneum in the pelvis on the right side.

PREDISPOSITION OF THE APPENDIX TO INFECTION

* Why appendix is liable to infections?

- ✚ The following factors contribute to the appendix's susceptibility to infection:
- It is a long, narrow, blind-ended tube, which encourages stasis of large-bowel contents.
- It has a large amount of lymphoid tissue in its wall.
 ← in children: ميليل
 ← elderly: بيدر ميليل
 ← ايكند وقت كبره موجود
 بيد 10-20 years.
- The lumen has a tendency to become obstructed by hardened intestinal contents (enteroliths), which leads to further stagnation of its contents.
 براز / لجنه

PREDISPOSITION OF THE APPENDIX TO PERFORATION

- The appendix is supplied by a long small artery that does not anastomose with other arteries End Artery. *has no branches.* لا يفرع ← فاش عند حنظل
Stenogulation تضيق
- The blind end of the appendix is supplied by the terminal branches of the **appendicular artery**.
- **Inflammatory edema** of the appendicular wall **compresses the blood supply to the appendix** and often leads to **thrombosis of the appendicular artery**.
- These conditions commonly result in **necrosis or gangrene of the appendicular wall, with perforation**. *in distal half not proximal.*
- Perforation of the appendix or transmigration of bacteria through the inflamed appendicular wall results in infection of the peritoneum of the greater sac.



PAIN OF APPENDICITIS

→ ANS → Sympathetic
→ parasympathetic

* appendix and skin of umbilicus have the same innervation (T10) Autonomic nerves.

- **Visceral Pain** in the appendix is produced by distention of its lumen or spasm of its muscle. *visceral pain ← حيداً، المرصه يشك في innervation* *عنه صدام الزائدة لما انتفخ ديداً يصير في اللفج ← حيداً، المرصه يشك في innervation*
- The afferent pain fibers enter the spinal cord at the level of **T10**, and a vague referred pain is felt in the region of the umbilicus. *لانه مش localized pain ← حيداً، المرصه يشك في innervation*
- Later, the pain shifts to where the **inflamed appendix irritates the parietal peritoneum. Somatic**
- Here the pain is precise, severe, and localized. *بشع في*

Ab. iliac fossa

Appendix

Abdominal Aorta L.
↑
sup. mesenteric artery
↑
ileocolic artery
↑

- **The appendicular artery** Branch of the posterior cecal artery. It passes to the tip of the appendix in the mesoappendix.
- The appendicular vein drains into the posterior cecal vein.
- The **lymph vessels** drain into one or two nodes lying in the mesoappendix and then eventually into the **superior mesenteric nodes**.
- Afferent nerve fibers concerned with the conduction of visceral pain from the appendix accompany the sympathetic nerves and enter the spinal cord at the level **T10**.

Ascending Colon

■ The ascending colon is about ^{6-8 inch} **(13 cm)** long and lies in the right lower quadrant.

■ It extends upward from the **ileocecal valve** to the inferior surface of the right lobe of the **liver**, where it turns to the left, forming the **right colic flexure**, and becomes continuous with the **transverse colon**.

■ The peritoneum covers the front and the sides of the ascending colon, binding it to the posterior abdominal wall.

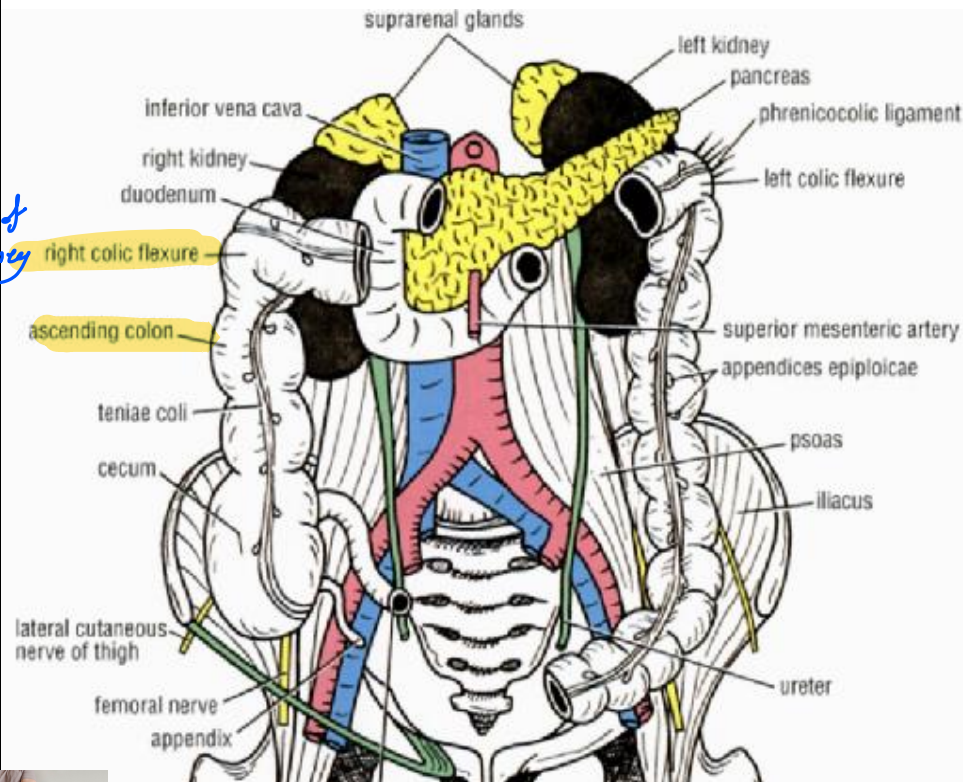
* Transverse colon + sigmoid colon → meso-colon
↳ intra-peritoneal → so they are mobile.

الأمعاء الحرة
* clinically ↑

الأمعاء الحرة
* Retroperitoneum
الأمعاء الحرة
* clinically ↑

الأمعاء الحرة
* descending colon.

descending & Transverse
↳ acute angle.



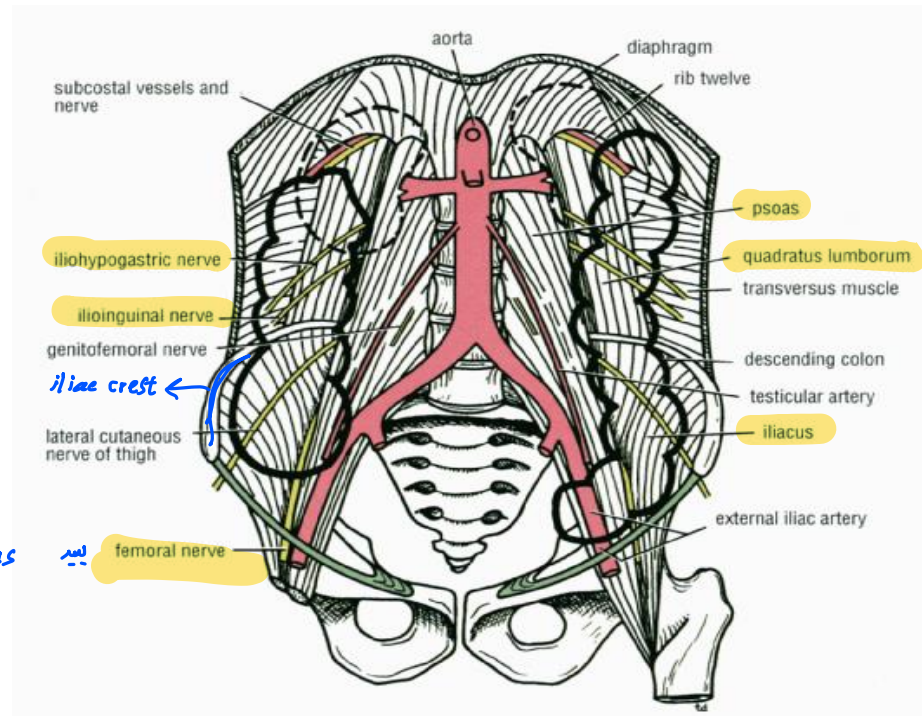
* hepatic flexure lower than splenic flexure.
* All small intestine is intraperitoneum.
* cecum covered by peritoneum, but duod. has mesentery.
* Ascending + Descending colon are Retroperitoneal
↳ so they are not mobile "Fixed"

Relations of the Ascending Colon

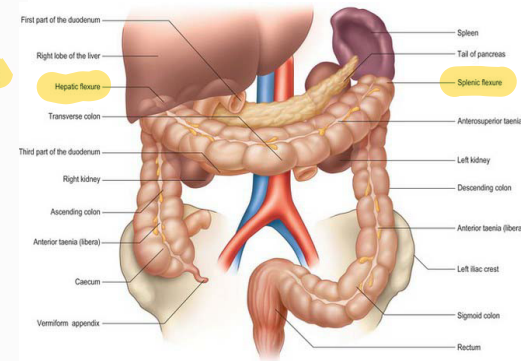
- **Anteriorly:** Coils of small intestine, the greater omentum, and the anterior abdominal wall.
- **Posteriorly:** The iliacus, the iliac crest, the quadratus lumborum, the origin of the transversus abdominis muscle, and the lower pole of the right kidney. The iliohypogastric and the ilioinguinal nerves cross behind it.

+ Small part of Psoas muscle + Femoral nerve

* لظلعواس ١
لومبر پلکسوس



iliacus + psoas



Ascending Colon

- The *Ileocolic and Right colic* branches of the superior mesenteric artery supply this area.
- The *veins* correspond to the arteries and drain into the superior mesenteric vein.

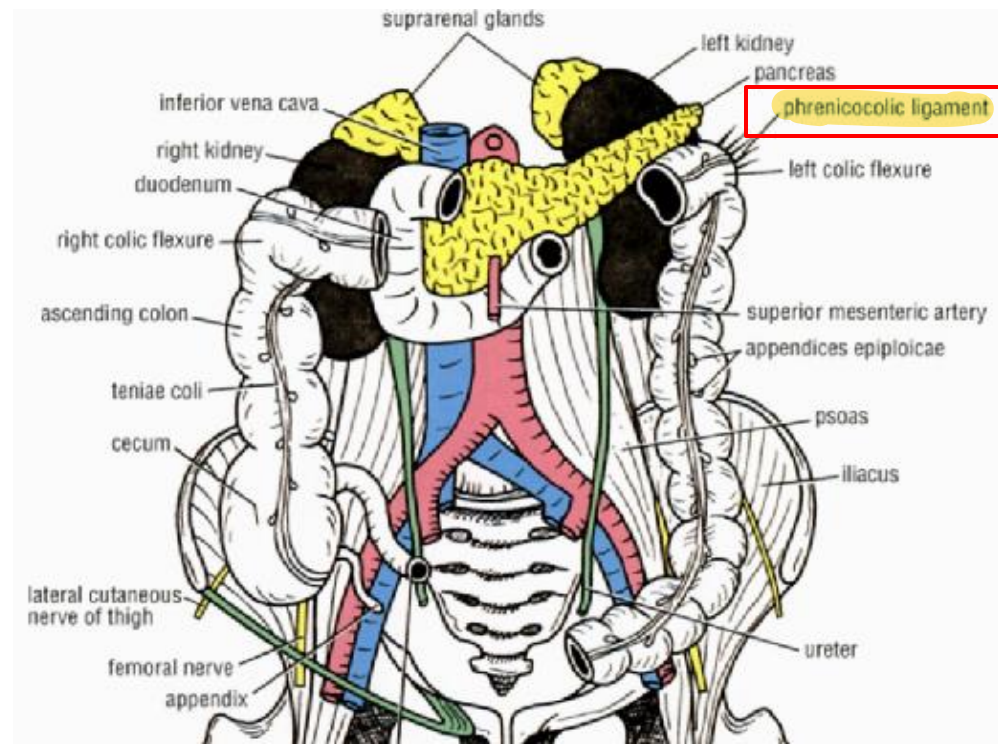
Transverse Colon

A colostomy is a surgical procedure where a portion of the colon (large intestine) is brought out through an opening in the abdominal wall, creating a stoma. This stoma is connected to an external bag or pouch to collect stool. It's often



- The transverse colon is about **(38 cm)** long and extends across the abdomen, occupying the umbilical region.
- It begins at the **right colic flexure** below the right lobe of the **liver** and hangs downward, suspended by the **transverse mesocolon** from the pancreas.
mobile part → *colostomy is usually done from transverse colon + sigmoid mesentery
- It then ascends to the **left colic flexure** below the spleen. *mobile part*

• The left colic flexure is **higher** than the right colic flexure and is *attached* suspended from the diaphragm by the **Phrenicocolic ligament**.

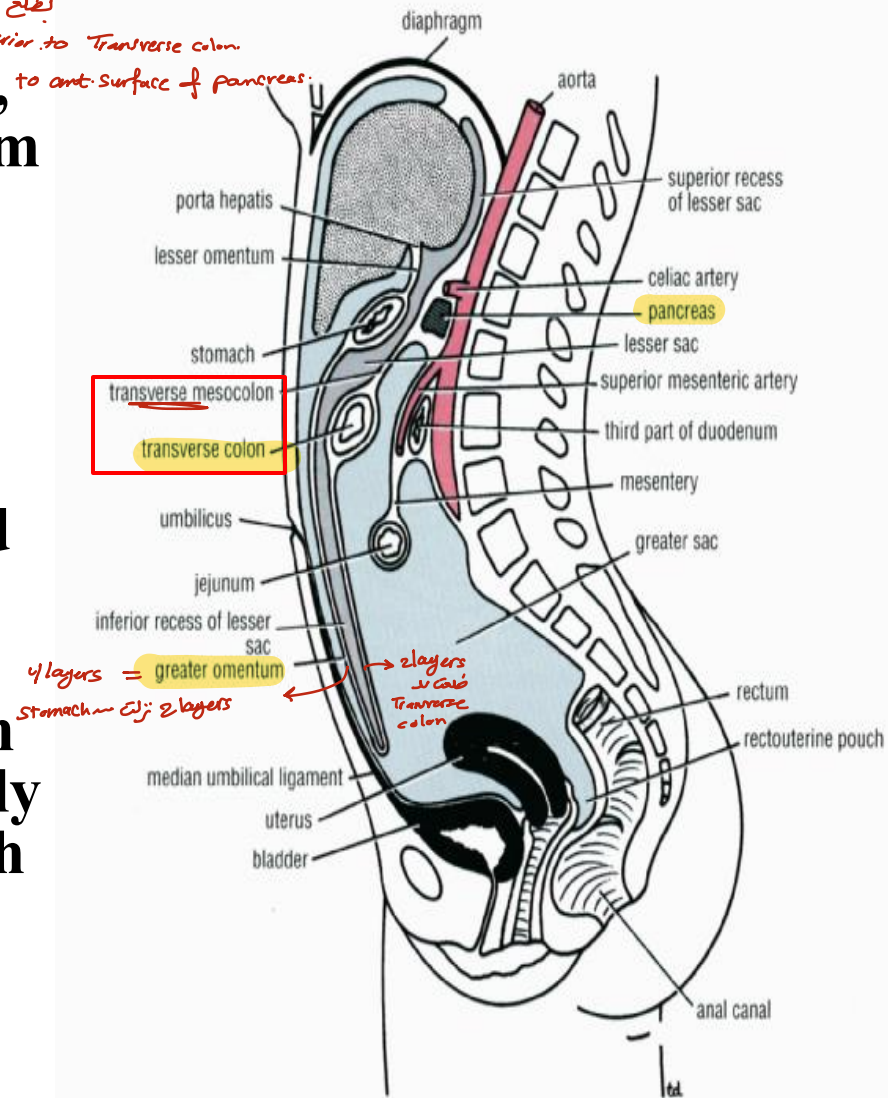


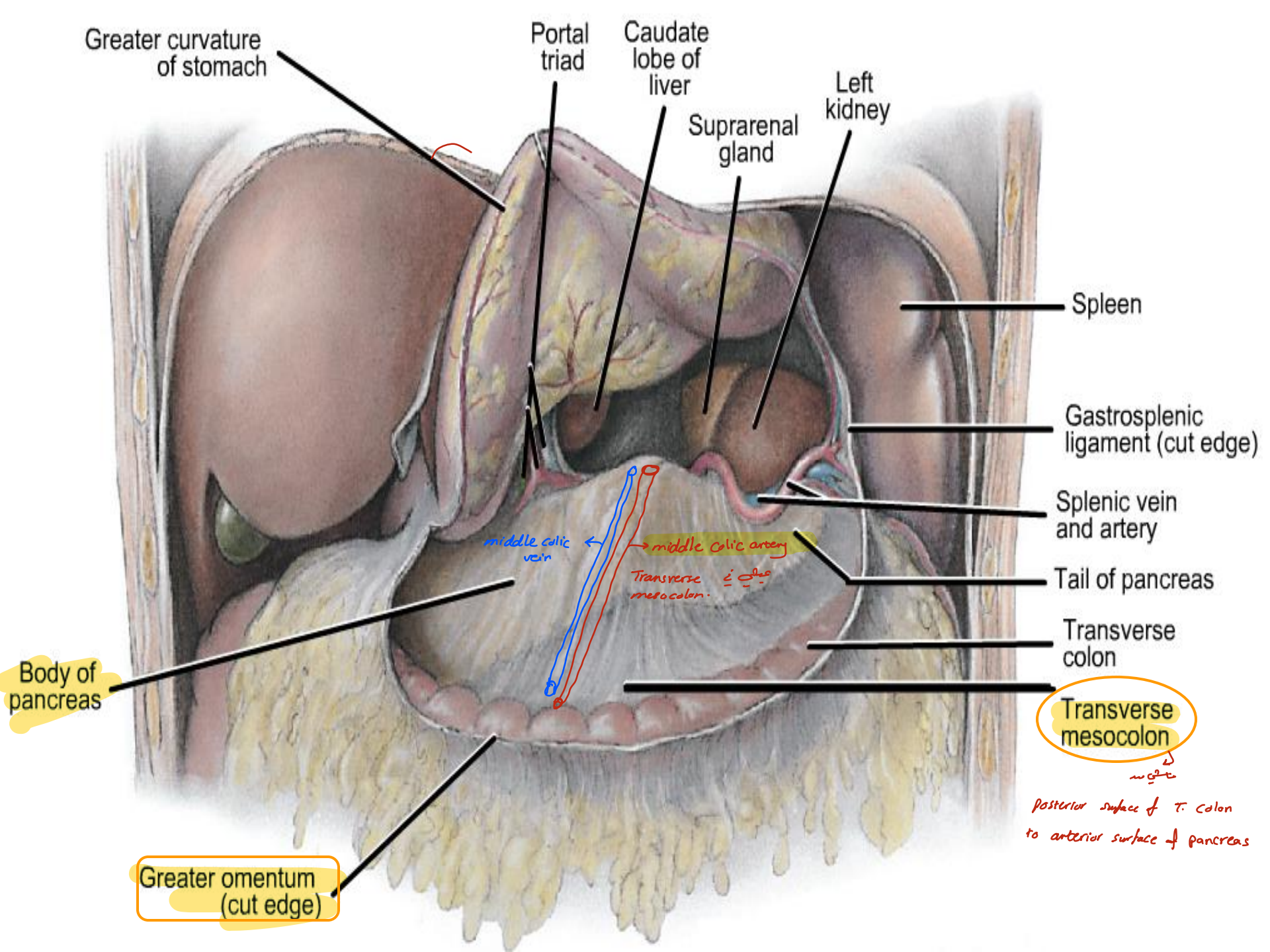
Transverse Colon

■ The Transverse Mesocolon, or ^{بطن} ^{Posterior to Transverse colon} ^{to ant. surface of pancreas:} mesentery of the transverse colon, suspends the transverse colon from the **anterior border** of the **pancreas**. ^{كفص باطن}

■ The mesentery is attached to the Superior border of the transverse colon, and the posterior layers of the greater omentum are attached to the Inferior border.

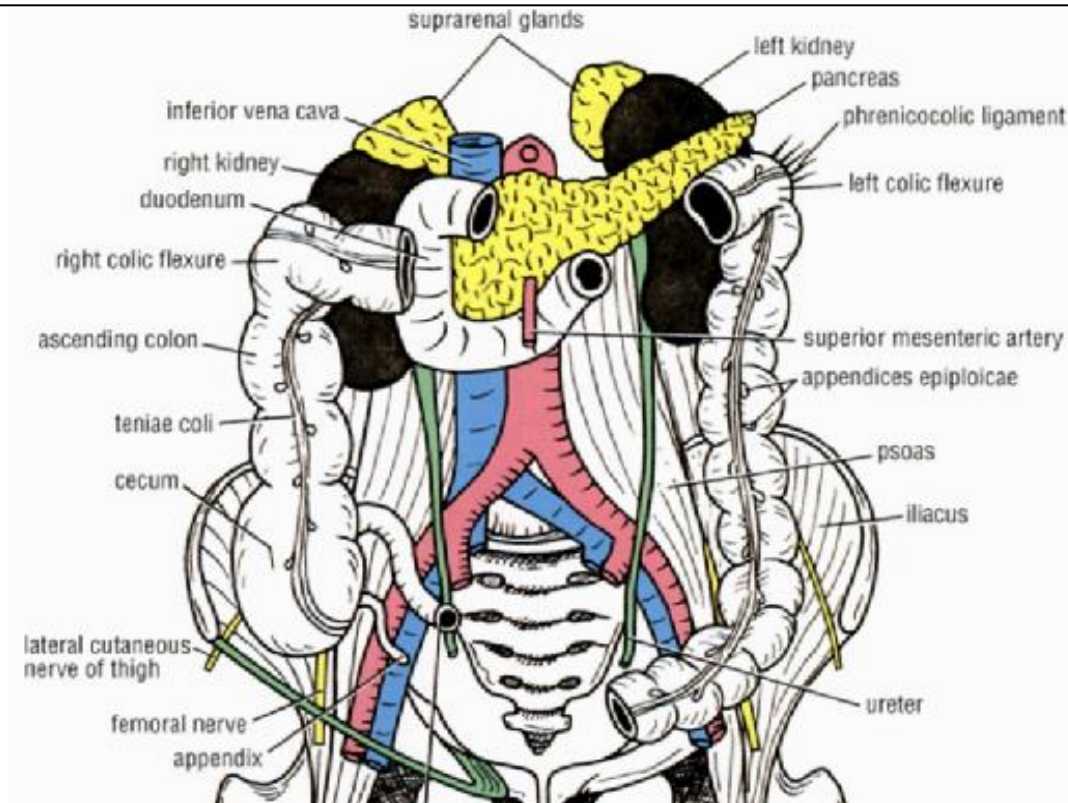
■ Because of the length of the transverse mesocolon, the position of the transverse colon is extremely variable and may sometimes reach down as far as the pelvis.





Relations of the Transverse Colon

- **Anteriorly**: The greater omentum and the anterior abdominal wall (umbilical and Hypogastric regions).
- **Posteriorly**: The second part of the duodenum, the head of the pancreas, and the coils of the jejunum and ileum.

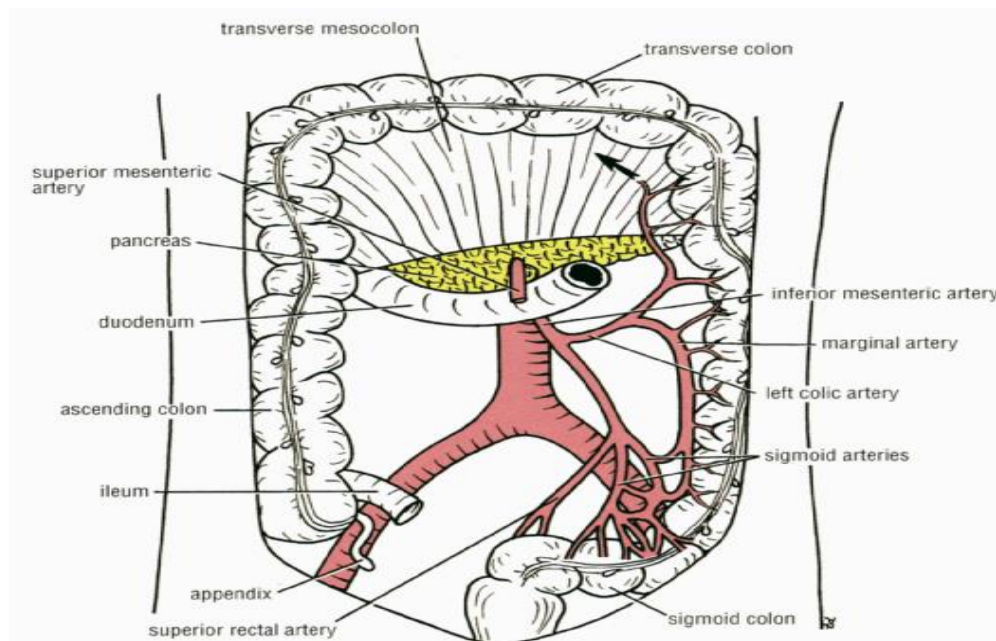


Transverse Colon

- Blood Supply**

The proximal two thirds are supplied by the Middle Colic Artery, a branch of the superior mesenteric artery.

The distal third is supplied by the left colic artery, a branch of the inferior mesenteric artery.
- The veins** correspond to the arteries and drain into the superior and inferior mesenteric veins.



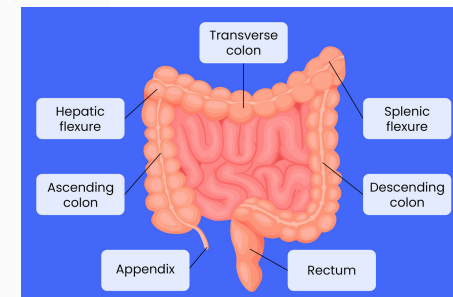
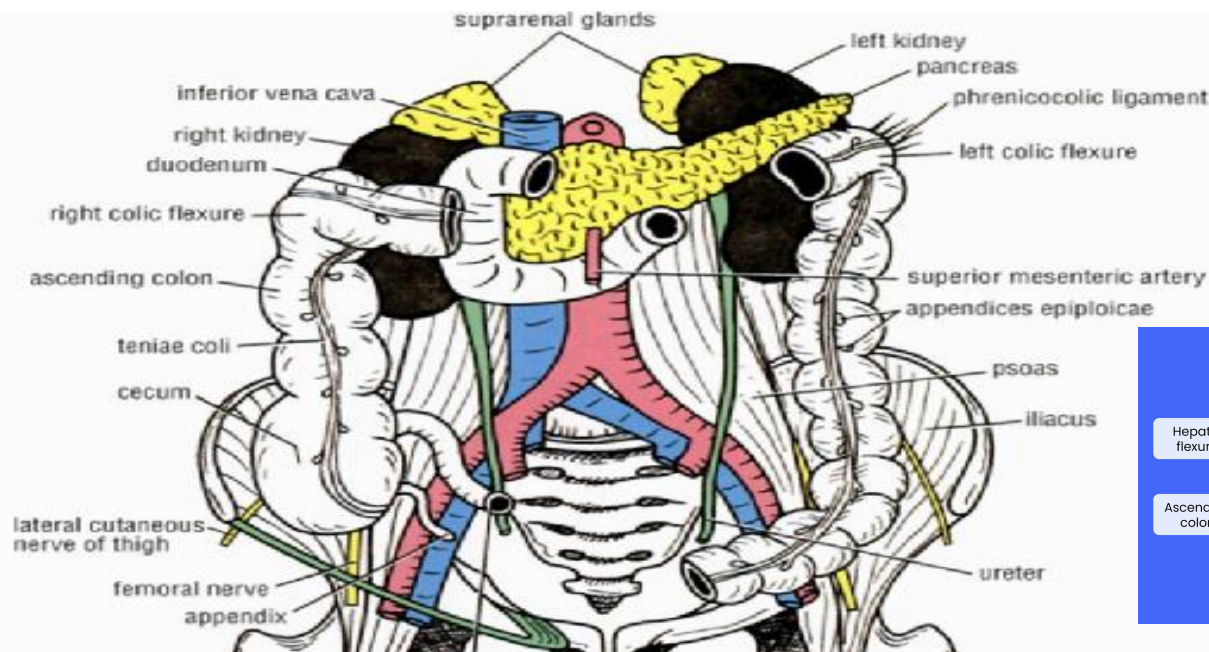
Transverse Colon

- *Lymph Drainage*
 - **The proximal two thirds drain into the colic nodes and then into the superior mesenteric nodes.**
 - **The distal third drains into the colic nodes and then into the inferior mesenteric nodes.**

Descending Colon

- The descending colon is about (25 cm) long and lies in the left upper and lower quadrants. *Ascending colon is about 8-10 inch*
- It extends downward from the left colic flexure, to the pelvic brim, where it becomes continuous with the sigmoid colon. *splenic flexure - acute angle between Transverse colon, descending colon*
- The peritoneum covers the front and the sides and binds it to the posterior abdominal wall.

→ Retro peritoneum covered anteriorly and sides only



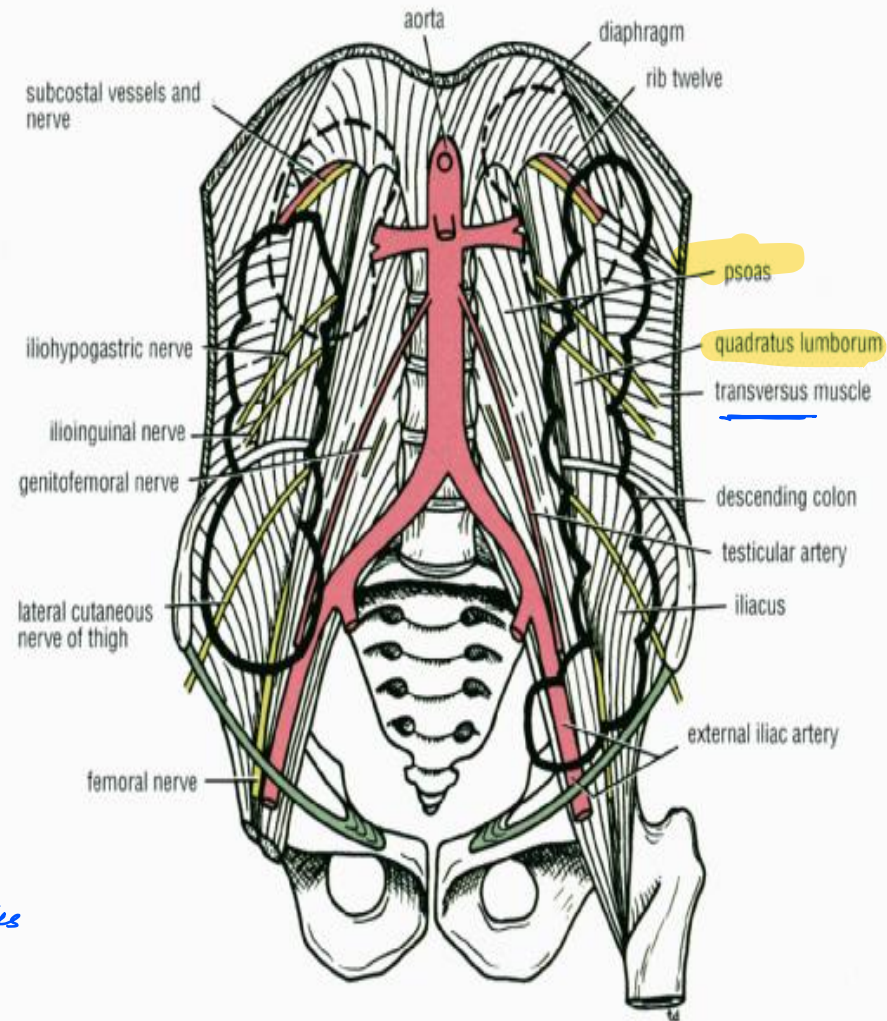
Relations of the Descending Colon

• **Anteriorly**; Coils of small intestine, the greater omentum, and the anterior abdominal wall.

• **Posteriorly**: The lateral border the left kidney, the origin of the transversus abdominis muscle, the quadratus lumborum, the iliac crest, the iliacus, and the left psoas. The iliohypogastric and the ilioinguinal nerves, the lateral cutaneous nerve of the thigh, and the femoral nerve also lie posteriorly.

↓
الزائدة
descending
colon
القولون
النازل
ascending
لفظ
جزء آخر
psoas

→ in the groove between
iliacus & psoas muscles



Descending Colon

- The left colic and the sigmoid branches of the inferior mesenteric artery supply this area.
↳ abdominal Aorta level 3
- The veins correspond to the arteries and drain into the inferior mesenteric vein.
- **Colic lymph nodes** and the inferior mesenteric nodes around the origin of the inferior mesenteric artery.